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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/827,256	04/05/2001	Stephen A. Empedocles	019916-004100US	4344
20350	7590	11/16/2004	EXAMINER	
TOWNSEND AND TOWNSEND AND CREW, LLP TWO EMBARCADERO CENTER EIGHTH FLOOR SAN FRANCISCO, CA 94111-3834			SMITH, ZANDRA V	
			ART UNIT	PAPER NUMBER
			2877	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/827,256

Applicant(s)

EMPEDOCLES ET AL.

Examiner

Zandra V. Smith

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 5, 8, 11, 17, 18, 24, 25, 27, 32, 34-42, 45, 47, 48, 53 and 54 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11, 32 and 54 is/are allowed.
- 6) ☒ Claim(s) 5, 8, 17, 18, 24, 25, 27, 34, 35, 39-42, 47, 48 and 53 is/are rejected.
- 7) ☒ Claim(s) 36-38 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. ____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Applicant's amendment, dated 09 August 2004, has been entered and an office action in response follows.

Claim Rejections - 35 USC § 102

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 17-18, 35 and 39 are rejected under 35 U.S.C. 102(e) as being anticipated by *Kambara et al. (US 6,288,220 B1)*.

As to **claim 17**, Kambara discloses a DNA Probe array, comprising:

spatially restraining a plurality of spectrally labeled bodies (col. 8, lines 10-15);

directing a spectrally dispersed image of the array of bodies onto a sensor (col. 8, lines 10-15); and identifying the bodies, wherein the bodies are array in openings affixed in a plate composed of a plurality of opening created by capillaries, effectively creating a multi-well plate (col. 12, lines 25-40).

As to **claims 18 and 39**, Kambara discloses everything claimed, as applied above, in addition a fluid is used to draw and expel the array of bodies (col. 12, lines 25-40).

As to **claim 35**, Kambara discloses a DNA Probe array, comprising:

a support having an array of sites (34, col. 12, lines 25-50) having an array of sites) wherein the sites comprise opening in the structures (capillaries inherently have holes);

a plurality of bodies (fig. 8a, col.12, line 60-col. 13, line 5) having a label for generating an identifiable spectrum, the bodies being restrainingly receivable at the sites (col. 8, lines 15-20); and;

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an optical train (col. 8, lines 25-40) with a dispersive element (col. 9, line 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 8, 34, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Kambara et al. (US 6,288,220 B1)*.

As to **claim 5**, Kambara discloses a DNA Probe array, comprising:

spatially restraining a plurality of spectrally labeled bodies (col. 8, lines 10-15) simultaneously in an array (4);

in the case of fluorescence measurement, dispersing the spectrum produced from each body (col. 8, line 65-col. 9, line 2); and

identifying each body from a dispersed spectrum produced when each body is illuminated (col. 8, lines 23-40), the spectrum being different (col. 8, lines 62-65) since different fluorophores are used. Kambara differs from the claimed invention in that the first and second spectral do not include a plurality of signals at differing wavelengths, however embodiment 4 (col. 15, lines 35-55) includes the use of a mixture of fluorophores effectively producing a plurality of signals at differing wavelengths. It would have been obvious to one having ordinary skill in the art at the time of invention to include a spectrum having a plurality of wavelengths to allow for simultaneous identification of a plurality of particles.

As to **claim 34**, Kambara discloses a DNA Probe array, comprising:

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a support having an array of sites(7, col. 8, lines 10-15);

a plurality of bodies (col. 8, line 61-col. 9, line 2) having a label for generating an identifiable spectrum, the bodies being restrainingly receivable at the sites (col. 8, lines 15-20); and;

an optical train (col. 8, lines 25-40) with a dispersive element (col. 9, line 1). Kambara differs from the claimed invention in that the first and second spectral do not include a plurality of signals at differing wavelengths, however embodiment 4 (col. 15, lines 35-55) includes the use of a mixture of fluorophores effectively producing a plurality of signals at differing wavelengths. It would have been obvious to one having ordinary skill in the art at the time of invention to include a spectrum having a plurality of wavelengths to allow for simultaneous identification of a plurality of particles.

As to **claims 8 and 41**, Kambara discloses everything claimed, as applied above, in addition figure 6 discloses an embodiment where the spectra are sequentially sensed (col. 11, lines 15-40). It would have been obvious to one having ordinary skill in the art at the time of invention to sequentially sense the spectra to allow for sensing the spectra in a two-dimensional probe array.

As to **claim 40**, Kambara discloses everything claimed, as applied above, in addition the sites comprise a discrete array of a material capable of bonding to the bodies (col. 7, lines 50-65).

As to **claim 42**, Kambara discloses everything claimed, as applied above, with the exception of the spacing of the sites, however as shown in figures 3-6 the sites are spaced from one another. It would have been obvious to one having ordinary skill in the art at the time of invention to space the sites to reduce interference from light generated at adjacent sites.

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Claim 24-25, 27, 45, 47-48, and 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Ulmer (5,776,674)* in view of *Kambara et al. (US 6,288,220 B1)*.

As to **claim 45**, Ulmer discloses a chemical, biochemical and biological processing in thin films, comprising:

a plurality of bodies released in a fluid, the bodies having labels for generating identifiable spectra (col. 2, lines 23-24 and col. 6, lines 30-40);

an energy transmitter coupled to the fluid so as to spatially restrain at least one body and a sensor oriented to receive the spectrum from the body wherein the at least one body generates the spectrum in response to the restraining energy (col. 10, lines 46-62). Ulmer differs from the claimed invention in that the first and second spectral do not include a plurality of signals at differing wavelengths, however Kambara discloses in embodiment 4 (col. 15, lines 35-55) the use of a mixture of fluorophores effectively producing a plurality of signals at differing wavelengths. It would have been obvious to one having ordinary skill in the art at the time of invention to include a spectrum having a plurality of wavelengths to allow for simultaneous identification of a plurality of particles.

As to **claims 24-25, and 27**, Ulmer discloses a chemical, biochemical and biological processing in thin films, comprising:

releasing a plurality of bodies in a fluid (col. 5, lines 16-30);

spatially restraining a first body within the fluid by transmitting restraining energy through the fluid (col. 5, lines 16-30), wherein the spatially restraining step is performed with a focused laser beam acting as an optical tweezer (col. 5, lines 16-30). Ulmer additionally discloses generating a spectrum and identifying the body based on the spectrum (col. 2, lines 23-

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24 and col. 6, lines 30-40). In addition an embodiment is provided that includes spatially restraining a plurality of bodies simultaneously in a line (col. 12, lines 37-50). It would have been obvious to one having ordinary skill in the art at the time of invention to restrain a plurality of bodies along a line for increased sample throughput. Ulmer differs from the claimed invention in that the first and second spectral do not include a plurality of signals at differing wavelengths, however Kambara discloses in embodiment 4 (col. 15, lines 35-55) the use of a mixture of fluorophores effectively producing a plurality of signals at differing wavelengths. It would have been obvious to one having ordinary skill in the art at the time of invention to include a spectrum having a plurality of wavelengths to allow for simultaneous identification of a plurality of particles.

As to **claim 47**, Ulmer and Kambara disclose everything claimed, as applied above, in addition col. 12, lines 25-35 provide alternative systems for optical trapping (moving the trap or the substrate). It would have been obvious to one having ordinary skill in the art at the time of invention to include a scanner with the movable light beam (see claim 1) to properly the laser beam to the substrate and to allow for the examination of multiple particles.

As to **claim 48**, Ulmer and Kambara disclose everything claimed, as applied above, in addition the optical train images the site toward the sensor and the energy transmitter moves the body toward the site (col. 6, lines 30-45).

As to **claim 53**, Ulmer and Kambara disclose everything claimed, as applied above, in addition an embodiment is provided to restrain a plurality of bodies alone a line (col. 12, lines 37-47). It would have been obvious to one having ordinary skill in the art at the time of invention to restrain a plurality of bodies along a line for increased sample throughput.

Allowable Subject Matter

Claims 11, 32, and 54 are allowed.

Claims 36-38 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the prior art of record, taken alone or in combination, fails to disclose or render obvious sequentially spatially restraining the bodies and drawing the first body into an opening by drawing fluid into the opening, expelling the body from the first opening and repeating with the second body, the openings are sized to receive a single body therein so as to separate the individual bodies for discrete imaging, the dispersed image having a dispersion axis at an angle to the a line onto the sensor surface, moving the restrained body within the fluid by moving the restraining energy or the fluid; sweeping the restraining energy through the fluid to move the first body toward a first site, or sweeping the restraining energy through the fluid to move a second body toward a second site and inhibiting transmission of the restraining energy between the first and second sites, in combination with the rest of the limitations of claim.

Response to Arguments

Applicant's arguments with respect to all pending claims have been considered but are moot in view of the new ground(s) of rejection. Additionally, the examiner apologizes for the

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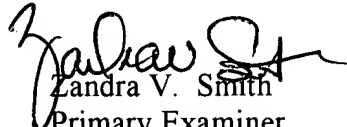
rejection of claims originally found allowable, however upon further view of the Kambara reference it was found that Kambara provides the limitations as claimed.

Fax/Telephone Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zandra V. Smith whose telephone number is (571) 272-2429. The examiner can normally be reached on 8:00 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley Jr. can be reached on (571) 272-2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Zandra V. Smith
Primary Examiner
Art Unit 2877

November 12, 2004